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ABSTRACT

A study was conducted on community college students in order to determine the correlational values among the variables of test anxiety and study behavior, and the student characteristics of age, gender, and ethnicity. Students enrolled in introductory psychology and English classes at American River College and Sacramento City College in California participated in the study by completing the Study Behavior Inventory (SBI) and Sarason's Test Anxiety Scale (TAS). The SBI measures undergraduates' study behaviors and academic self-perception, and the TAS measures the amount of test anxiety among students. Students' demographic information including ethnicity, gender, age, academic background, and language background was also determined. Principle findings of the study include (1) non-white students may need more instruction about study habits and help with combating test anxiety than whites; (2) younger students, especially males, may need additional instruction about study habits; (3) female students are in greater need for help than males with overcoming test anxiety; and (4) the best predictor of higher levels of test anxiety is lower study skills. Provides several tables of data. (Contains 18 references.) (YKH)

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Test Anxiety and Study Behavior of Community College Students in Relation to Ethnicity, Gender, and Age

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Abstract

Excessive test anxiety and poor study behavior are two specific areas that have been shown to have an impact upon academic success of students. Yet there has been limited research addressing the relationship between these variables and student characteristics such as age, gender, and ethnicity. With the tremendous influx of immigrant students, it is important to determine if demographic variables are related to test anxiety and study behavior. Data were collected from 1,441 students enrolled at two community colleges in the greater Sacramento, California area. Test anxiety was measured by Sarason's Test Anxiety Scale while study habits were assessed by The Study Behavior Inventory authored by Bliss & Mueller. The results from the study indicated that females tend to have better study behaviors than males (p <.001) yet also experience higher levels of test anxiety than males (p <.001). Older students tend to have better study behavior than younger students (p <.001), and non-white students tend to experience higher levels of test anxiety and have poorer study behavior when compared to white students. There were no significant differences among age groups with respect to test anxiety. The Pearson correlation between the Study Behavior Inventory and the Test Anxiety Scale was -.47 indicating that poor study behavior is related to higher levels of test anxiety, and better study behavior is related to lower levels of test anxiety (p <.001). Multiple regression analysis also revealed that test anxiety, gender, age, and ethnicity were all statistically significant predictors of study behavior. Similarly, study behavior, gender, and age were statistically significant predictors of test anxiety.

Students in Relation to Ethnicity, Gender, and Age.[1]

As a result of the increasing number of immigrants to the United States - especially California, there is little doubt that the population characteristics of students on most community college campuses are also rapidly undergoing change. Witness how many different languages one hears walking across a typical college campus. In addition to cultural or ethnic changes, there are also more women as well as older students attending community colleges than in the past. For example, during the past five years at American River College (Sacramento, CA), the number of non-white students has increased from 26% to 34% and is still climbing. Presumably, other community colleges have observed an even greater increase. Similarly, the number of women presently comprise about 59% of the student body, and the median age for both sexes combined is 27 years (Rasor & Barr 1996). All of these various subgroups of students are likely to have somewhat different expectations and behaviors in relation to learning and being evaluated for academic mastery via the usual instructor developed course tests. Because colleges have and probably always will be a test-conscious, test giving environment where the academic success of students is in part determined by their course test performances, it is not surprising that test anxiety is a problem for many students. Furthermore, high levels of test anxiety and corresponding low levels of academic success are often attributed to insufficient exam preparation (Hembre, 1988; Gross, 1990). There is also some research which suggests that a good way to reduce test anxiety is to improve study behavior (Jones & Petruzzi, 1995).

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[1] We wish to thank Jim Barr for his programming skills in assisting with the analysis of results.

In more general terms, test anxiety appears to reflect a combination of bodily arousal and worry which not only interferes with attention and memory retrieval, but can affect judgment and the ability to reach decisions (Sarason, 1984; Janis, 1993; Mandler, 1993; Gierl & Rogers, 1996). Test anxiety can also be interpreted as worry or emotion in the face of academic demands which are self-threatening (Van Der Ploeg, Schwarzer, & Spielberger, 1982). Yet it is the cognitive worry component of test anxiety that seems to be more predictive of lower academic performance than the emotionality or arousal component (Pintrich, Cross, Kozma, & McKeachie, 1986). In any event, in application of the Yerkes-Dodson law, academic tests are sufficiently complex to require a low to moderate level of arousal rather than a high arousal level in order to reach maximum performance (Coon, 1998). Students with high anxiety and high arousal can also learn to relax more during a testing situation by developing those skills to reduce high arousal and self defeating thoughts (Ricketts & Galloway, 1984; Watson & Tharp, 1996). Of course, the bottom line is that relaxing will not simply lead to higher academic performance unless the information to be retrieved is present within the memory system. Those students with good study habits probably do not have problems with encoding and organizing the material to be learned. If these students perform badly, it is due to problems with retrieval which may be a direct function of test anxiety. If, however, students have poor study habits, they do not encode the material very well. Then the problem is not so much one of retrieval but failure to sufficiently input the material to be learned. No amount of relaxation will help this type of test anxious student.

Relatively little is known about the relationship of test anxiety and study behavior as those variables relate to gender, different ages, or different ethnic groups (Dion & Toner, 1988; Sue & Zane, 1985; Llabre & Froman, 1987). Therefore, the purpose of this research was to determine the correlational values among the variables of test anxiety, study behavior, and the student characteristics of age, gender, and ethnicity.

Methodology

Participants: Students enrolled in introductory psychology classes and several sections of three different levels of introductory English at American River College and Sacramento City College (both community colleges in Sacramento, California) were the subjects for the study. The final number participating in the study was 1,441 (males = 676 ; females = 765) with a median age of 21.8 years.

Materials. The materials used in this study included the Study Behavior Inventory (SBI) (see Bliss & Mueller, 1987), Sarason's Test Anxiety Scale (TAS) (see Sarason, 1980), and an additional 8 questions pertaining to demography. The Study Behavior Inventory (SBI) is a 46-item self-report instrument designed to both measure undergraduates' study behaviors and to serve as a diagnostic screening tool for advising students into learning assistance and developmental programs. Specifically, it measures: 1) academic self-perception; 2) behaviors involved in performing routine, short-range academic tasks such as note taking and

study-reading; and 3) behaviors involved in performing specific long-range academic tasks such as studying for major exams and preparing projects. The SBI was normed on a sample of over 5,000 men and women undergraduates in two and four-year colleges throughout the country and correlates highly (r=.67 to .79) with cumulative grade-point averages.

Sarason's Test Anxiety Scale (TAS) is a true-false, 37-item scale in which the items are summed in order to arrive at a total score. A high score indicates high test anxiety (maximum score 37) while a low score indicates low test anxiety (minimum score zero). The construct validity of the TAS has been established through factor analysis along with item analysis.

The 8 demographic items focused upon ethnicity; gender; age; whether or not students were born in the United States; the approximate number of years students had spoken and written English; approximate high school grade-point average; previous college units completed; and, approximate college grade-point average. Some of these demographic items were simplified for analysis (ethnicity and age classifications) while others were omitted after analysis revealed that they had no relationship to study behavior or test anxiety.

Procedure. During a recent semester, contact was made with all English and psychology instructors on both campuses to determine if they would be willing to participate by volunteering their classes for the research. Prior to completing the SBI and TAS questionnaires, students

were informed that the present study they were about to participate in would be examining test anxiety and study behaviors of college students; assured that their individual responses would be strictly confidential; and asked to answer each item as truthfully as possible. They were also given feedback on the research results.

Results and Discussion

Study Behaviors. In Table 1 are the means and standard deviations on the SBI for all ethnic categories. The means range from 117.90 to 128.53, a difference of 10.63 points. Noteworthy is the fact that the 858 whites had a significantly higher mean (128.53) than the 583 non-whites (123.27), F (1, 1439) = 36.48, p <.001, eta squared = .025. The ethnic groupings were reconfigured in order to run a one-way ANOVA. The means and standard deviations of these new groups on the SBI are found in Table 2, and there were significant differences among the groups, F (4, 1436) = 9.41, p < .001, eta squared = .026. Tukey *HSD* post-ANOVA comparisons revealed that whites had a significantly higher mean than each of the other four ethnic groupings. Table 3 shows the means and standard deviations on the SBI for male and female students as well as reconfigured age groups. Females had a significantly higher mean than males, F (1, 1439) = 11.15, p <.001, eta squared = .008; and the ANOVA on age groups was also significant, F (2, 1438) = 18.79, p <.001, eta squared =.025; *HSD* post ANOVA comparisons also revealed that the 30+

age group had a significantly higher mean than either of the other age groups, $p < .001$. It would appear, then, that whites, females, and the 30+ age groups have better study behaviors as measured by the SBI than their respective counterparts.

Test Anxiety. In Table 4 are the means and standard deviations for all ethnic groups on the TAS. Overall, non-whites have a significantly higher level of test anxiety (mean = 19.44) than whites (mean = 17.68), F (1, 1439) = 15.86, $p < .001$, eta squared = .011. Chinese also had the highest levels of test anxiety, a finding consistent with that found by Dion & Toner (1988). Table 5 shows the anxiety means for reconfigured ethnic groups. There were significant differences among the groups, F (4, 1436) = 4.31, $p < .01$, eta squared = .012. Tukey *HSD* post-ANOVA comparisons revealed that only Asians had a significantly higher test anxiety mean than whites, $p < .01$. The text anxiety means aggregated by gender and by age groupings are shown in Table 6. ANOVA revealed that female students had a significantly higher test anxiety mean than males, F (1, 1439) = 56.78, $p < .001$, eta squared = .038. There were no significant differences among the means for age groups, F (2, 1438) <1.

Relationship Between Study Behavior and Test Anxiety and other Variables. The Pearson correlation coefficient between SBI and TAS values was -.47 ($p < .001$) indicating that lower study behavior skills tend to be related to higher test anxiety, a unsurprising finding which is consistent

with the results of Van Der Ploeg, Schwarzer, and Spielberger (1983). Other correlational values may be found in Table 7. Some of these are statistically significant although they are of relatively low magnitude.

Multiple Regression Analysis. In Table 8 are the results of a stepwise multiple regression with the dependent variable being study behavior. The significant predictors of SBI scores in descending order are test anxiety, gender, age, and ethnicity. Once the variable of test anxiety was entered into the equation, all other variables added less than 4% of unique explained variance in SBI scores. The full model accounted for 27.7% of the variance in SBI scores. In Table 9 is a stepwise multiple regression analysis where the criterion variable is Sarason's Test Anxiety Scale. The best predictor variable is SBI followed by gender and age. The variable of ethnicity did not significantly add to the value of R and R^2. The full model explained 28% of the variables in test anxiety scores.

The principal findings of this study are as follows: (1) non-white students may need even more instruction about study habits than whites. They may also need more help with combating test anxiety; (2) younger students, and especially males, may need additional instruction about study habits; (3) female students are in greater need for help than males with overcoming test anxiety; (4) the best predictor of higher levels of test anxiety is lower study skills.

Table 1.

Means, Standard Deviations, and Ns for All Ethnic Groups on the Study Behavior Inventory.

Ethnicity	*n*	*Mean*	*SD*
Chinese	37	120.65	15.28
Japanese	33	122.82	12.54
Vietnamese or Other Asian	92	124.97	15.12
Pacific Islander	27	124.85	16.64
American Indian	33	125.45	13.92
African Amer.	108	121.78	17.36
Filipino	41	124.80	16.26
Hispanic	116	123.09	16.72
Other Latino	20	117.90	14.00
Middle Eastern	12	123.50	17.11
Other Non-White	64	124.70	17.78
White	858	128.53	16.36
All Groups	1,441	126.44	16.35

Table 2.

Reconfigured Means, Standard Deviations, and Ns for Modified Ethnic Categories on the Study Behavior Inventory.

Ethnicity	*n*	*Mean*	*SD*
Asian	162	123.54	14.68
African Amer.	108	121.78	17.36
Hispanic	116	123.09	16.72
Other Non-White	197	124.07	15.49
White	858	128.53	16.36
All Groups	1,441	126.44	16.35

Table 3.

Means, Standard Deviations, and Ns for Gender and Age Groups on the Study Behavior Inventory.

Group	*n*	*Mean*	*SD*
Male	676	124.89	15.87
Female	765	127.76	16.66
< 20 years	563	124.67	15.58
20 - 29 years	692	126.07	16.27
30 + years	186	132.98	17.39

Table 4.

Means, Standard Deviations, and Ns for All Ethnic Groups on Sarason's Test Anxiety Scale.

Ethnicity	*n*	*Mean*	*SD*
Chinese	37	22.16	6.97
Japanese	33	18.97	8.43
Vietnamese or Other Asian	92	19.47	7.95
Pacific Islander	27	18.74	6.33
American Indian	33	19.70	7.63
African Amer.	108	19.43	8.16
Filipino	41	19.07	7.04
Hispanic	116	19.67	8.91
Other Latino	20	18.90	8.98
Middle Eastern	12	16.50	6.78
Other Non-White	64	18.43	8.91
White	858	17.68	8.36
All Groups	1,441	18.38	8.30

Table 5.

Reconfigured Means, Standard Deviations, and Ns for Modified Ethnic Groups on Sarason's Test Anxiety Scale.

Ethnicity	*n*	*Mean*	*SD*
Asian	162	19.98	7.88
African Amer.	108	19.42	8.16
Hispanic	116	19.67	8.90
Other Non-White	197	18.77	7.78
White	858	17.68	8.36
All Groups	1,441	18.38	8.30

Table 6.

Means, Standard Deviations, and Ns for Gender and Age Groups on Sarason's Test Anxiety Scale.

Group	*n*	*Mean*	*SD*
Male	676	16.65	8.01
Female	765	19.89	8.25
< 20 years	563	18.71	8.19
20 - 29 years	692	18.08	8.32
30 + years	186	18.44	8.53

Table 7.

Correlation Coefficients Between Predictor Variables, the Study Behavior Inventory, and Sarason's Test Anxiety Scale (n = 1,441).

Predictor Variable	SBI	Test Anxiety
SBI		-.471**
Test Anxiety	-.471**	
Gender	.088**	.195**
Age	.139**	-.020
Ethnicity	.138**	-.100**
H.S. GPA	.004	.049
College GPA	-.030	-.010
College Units Completed	.090**	-.050*

* $p < .05$, ** $p < .001$.

Coding was done as follows: Males = 1, Females = 2; Ethnicity used dummy membership codes; H.S. and College GPA: < "C" = 1, mod. "C" = 2, high "C" =3, mod. "B" = 4, high "B" or "A" = 5; College Units Completed: None = 1, 1 to 15 = 2, 16 to 30 = 3, 31 to 45 = 4, 46+ = 5.

Table 8.

Stepwise Multiple Regression Analysis Where the Criterion Variable is the Study Behavior Inventory.

Predictor Variable	Cum. *R*	Cum. R^2	R^2 *change*	*p*
Test Anxiety	.471	.221	.221	< .001
Gender	.505	.255	.033	< .001
Age	.521	.272	.017	< .001
Ethnicity	.527	.277	.006	< .001

Table 9.

Stepwise Multiple Regression Analysis Where the Criterion Variable is Sarason's Test Anxiety Scale.

Predictor Variable	Cum. *R*	Cum. R^2	R^2 *change*	*p*
Study Bev. Inv.	.471	.221	.221	< .001
Gender	.527	.278	.056	< .001
Age	.529	.280	.002	< .05

References

Bliss, L. B. & Mueller, R. J. (1987). Manual for administration of the study behavior inventory: Form D. Scottsdale, AZ.: Androgogy Associates.

Coon, D. (1998). Introduction to psychology: Exploration and application. (8th ed.) Pacific Grove, CA.: Brooks/Cole.

Dion, K. L. & Toner, B. B. (1988). Ethnic differences in test anxiety. The Journal of Social Psychology, 128, 165-172.

Gierl, M. J. & Rogers, W. T. (1996). A confirmatory factor analysis of the Test Anxiety Inventory using Canadian high school students. Educational & Psychological Measurement, 56(2), 315-324.

Gross, T. F. (1990). General test and state anxiety in real examinations: State is not test anxiety. Educational Research Quarterly, 14(3), 11-20.

Hembre, R. (1988). Correlates, causes, effects, and treatment of test anxiety. Review of Educational Research, 58, 47-77.

Janis, I. L. (1993). Decision making under stress. In L. Goldberger & Breznitz (Eds.), Handbook of stress: Theoretical and clinical aspects (2nd ed.) New York: Wiley.

Jones, L. & Petruzzi, D. C. (1995). Test anxiety: A review of theory and current treatment. Journal of College Student Psychotherapy, 10(1), 3-15.

Llabre, M. M. & Froman, T. W. (1987). Allocation of time to test items: A study of ethnic differences. Journal of Experimental Education, 55, 137-140.

References (continued)

Mandler, G. (1993). Thought, memory, and learning: Effects of emotional stress. In L. Goldberger & Breznitz (Eds.), Handbook of stress: Theoretical and clinical aspects (2nd ed.) New York: Wiley.

Pintrich, P. R., Cross, D. R., Kozma, R. B., & McKeachie, W. J. (1986). Annual review of psychology, 37, 616-641.

Rasor, R. A. & Barr, J. E. (1996). Institutional effectiveness. American River College. Sacramento, CA. Unpublished manuscript.

Ricketts, M. S. & Galloway, R. E. (1984). Effects of three different one-hour single-session treatments for test anxiety. Psychological Reports, 54, 113-119.

Sarason, I. G. (1980). Test anxiety: Theory, research, and applications. Hillsdale, NJ.: Erlbaum.

Sarason, I. G. (1984). Stress, anxiety and cognitive interference: Reactions to stress. Journal of Personality and Social Psychology, 46, 929-938.

Sue, S. & Zane, N. (1985). Academic achievement and socio-emotional adjustment among Chinese university students. Journal of Counseling Psychology, 32, 570-579.

Van Der Ploeg, H. M., Schwarzer, R., & Spielberger, C. D. (1982). Advances in test anxiety research. (Vol. 1). Hillsdale NJ: Erlbaum.

Watson, D. L. & Tharp, R. G. (1996). Self-directed behavior: Self-modification for personal adjustment. (4th ed.). Monterey, CA.: Brooks/Cole.